Advanced Services
Occupational Demand-Supply Analysis for the Central Midwest

Principal Investigator:
David J. Peters

CAREER CONNECTIONS

P-0503-1
May 2003

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Overview

The United States economy is restructuring from an industrial economy to a post-industrial economy. This entails a shift in the core industries that drive the economy, away from manufacturing and transportation towards communications and advanced services. This new core, composed of service and information producing firms, is what will drive the nation's growth in the coming decades. Therefore, it is imperative that policy-makers at all levels of government understand the strengths and weaknesses of their advanced services base. Given the nature of the global economy, policy-makers need to identify areas of economic comparative advantage that they can build upon; and areas of economic vulnerability that they need to strengthen.

Increasingly, economic development efforts are focusing on attracting quality jobs, rather than attracting the largest quantity of jobs. Given this preference, the skill and occupational mix of the workforce is a crucial consideration in determining an economic development strategy. A region's chance of successfully attracting a particular industry rests heavily with the occupational base in the community. Labor requirements differ across industries and are based upon the primary economic activity of the firm. In essence, successful economic development partly rests with matching the available occupational base in the community with an industry's occupational demand.

The purpose of this analysis is to provide indicators of the national competitiveness of a region's occupational base in the advanced services industries in the central Midwest. Occupational similarity can be used by economic developers and policy officials in two ways. First, ranking the similarity scores within a region provides a form of industry targeting that indicates which industries are best suited to the occupational base in the region. Second, industries with high dissimilarity are identified so that programs can be developed which strengthen the labor force in the region in order to make the area more attractive to selected industries.

It is important to note that low occupational similarity does not necessarily mean that the region has poor quality occupations or skill levels. Different types of advanced services firms require different occupations and skills, and will locate to areas that best suit their labor needs. For example, engineering services firms may not locate to areas dominated by low-skill occupations since they may have difficulty finding qualified workers. On the other hand, social services firms may not locate to areas dominated by high-skill occupations since they too may have difficulty finding workers willing to work in lower-skill jobs at lower pay.

Data and Methods

One method to measure the disparity between the occupational demand of an industry and the occupational supply in a region is by using the Occupational Similarity Index (OSI). The index produces a similarity measure for a region that is normalized to the national average. Index scores are expressed in standard deviations above and below the national similarity score. The OSI can be interpreted in two ways. First, ranking the OSI values for each industry within a region provides a form of industry targeting that indicates which industries are best suited to the occupational base in the region. Second, OSI values can be used in developing programs that strengthen the labor force in the region in order to make the area more attractive to selected industries.

The OSI is calculated by taking the difference between the industry occupational demand minus the regional occupational supply across 22 occupational groupings, which is then normalized to the national average. National industry occupational demand was derived from Occupational Employment Statistics data from the U.S. Bureau of Labor Statistics. Regional occupational supply was derived from STF-3 Census 2000 data from the U.S. Census Bureau. Data was gathered at the county-level for five central Midwestern states that included Arkansas, Illinois, Iowa, Kansas and Missouri.

OSI values less than 0.0 indicate a greater occupational similarity or match between national industry demand and regional supply. This indicates that the region has the labor needed to support that industry, which may indicate a national competitive advantage in terms of labor compared to the rest of the United States. Conversely, OSI values greater than 0.0 indicate a lower occupational similarity or dissimilarity between national industry demand and regional supply. This indicates that the region does not have the required labor needed to support that industry.

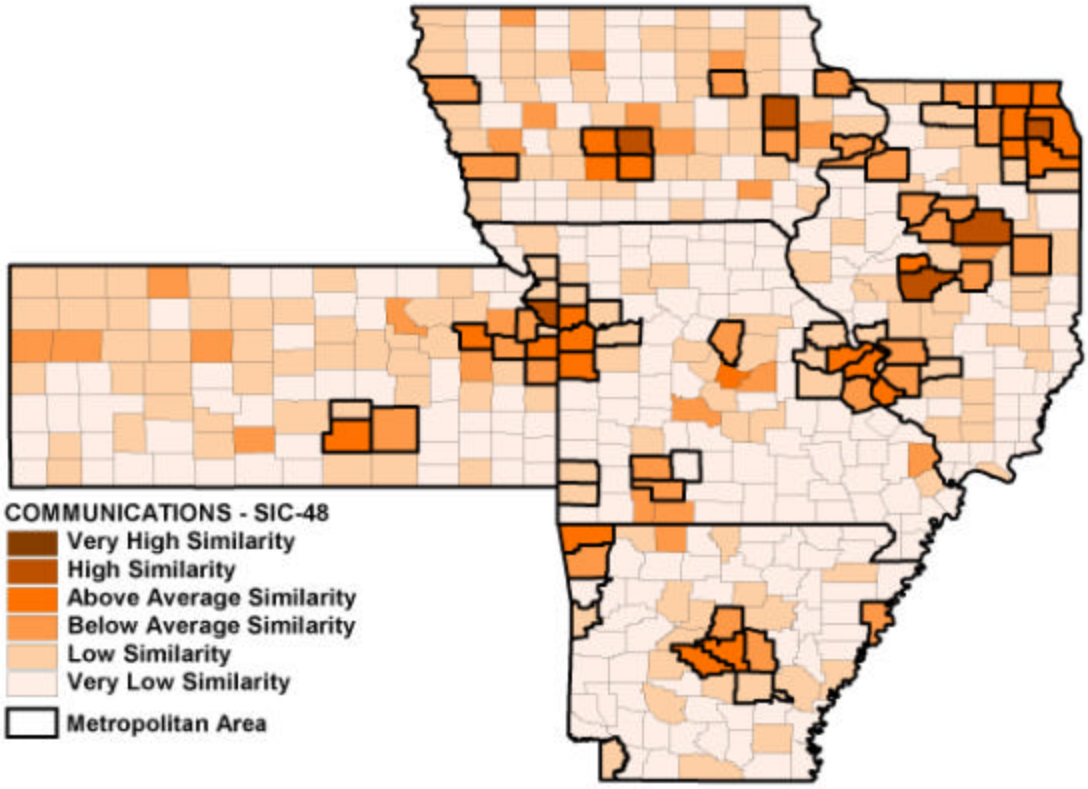
$$OSI_{ir} = \left(\frac{OS_{ir} - \mu_n}{\sigma_n} \right)$$

$$OS_{ir} = \sum_{j=1}^{22} \left| \left(\left(\frac{E_{jr}}{E_r} \right) - \left(\frac{E_{ijn}}{E_{in}} \right) \right) \right|$$

Where:

- μ = Mean of OS Scores
- s = Standard Deviation of OS Scores
- i = Industry
- j = Occupation
- r = Region
- n = Nation
- E = Employment

Communications



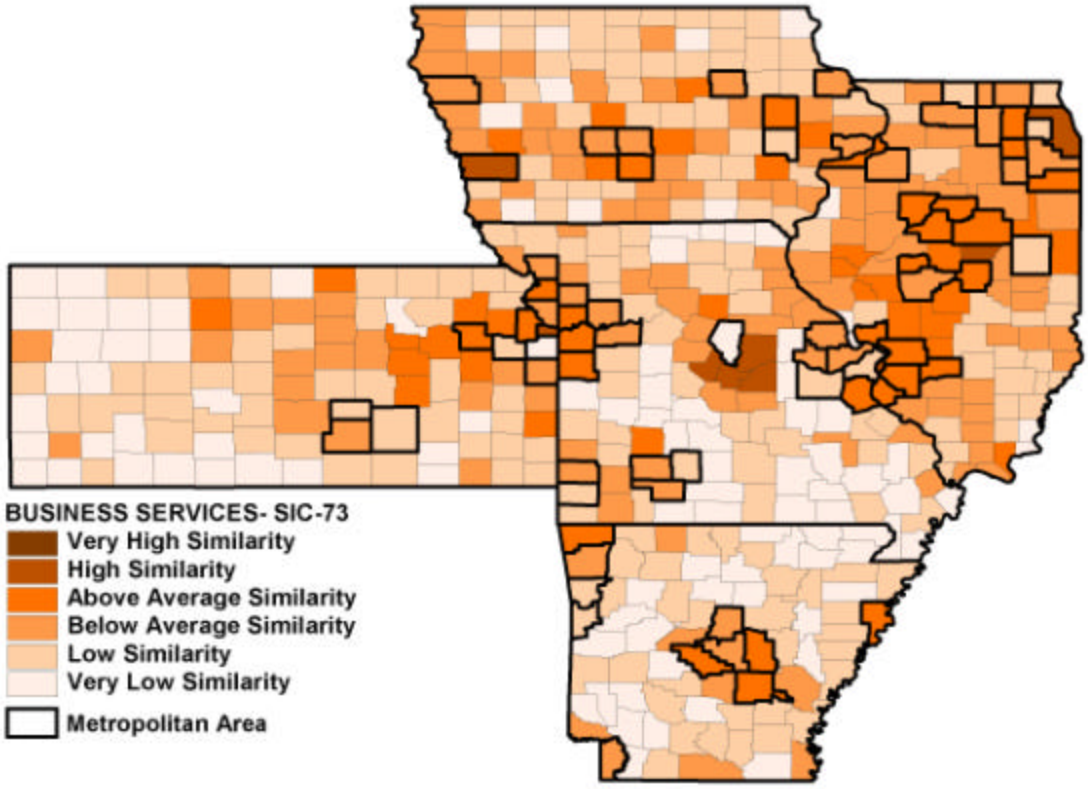
On average across the United States, the top five occupations demanded in this industry include:

Office & Administrative Support Occupations	28.2%
Installation, Maintenance & Repair Occupations	22.0%
Sales Occupations	12.5%
Arts, Design, Entertainment & Media Occupations	10.1%
Management Occupations	8.3%

In Missouri only one county had high or very high similarity between national occupational industry demand and county occupational supply, where Platte County had high similarity. The top similarity counties were:

PLATTE

Business Services



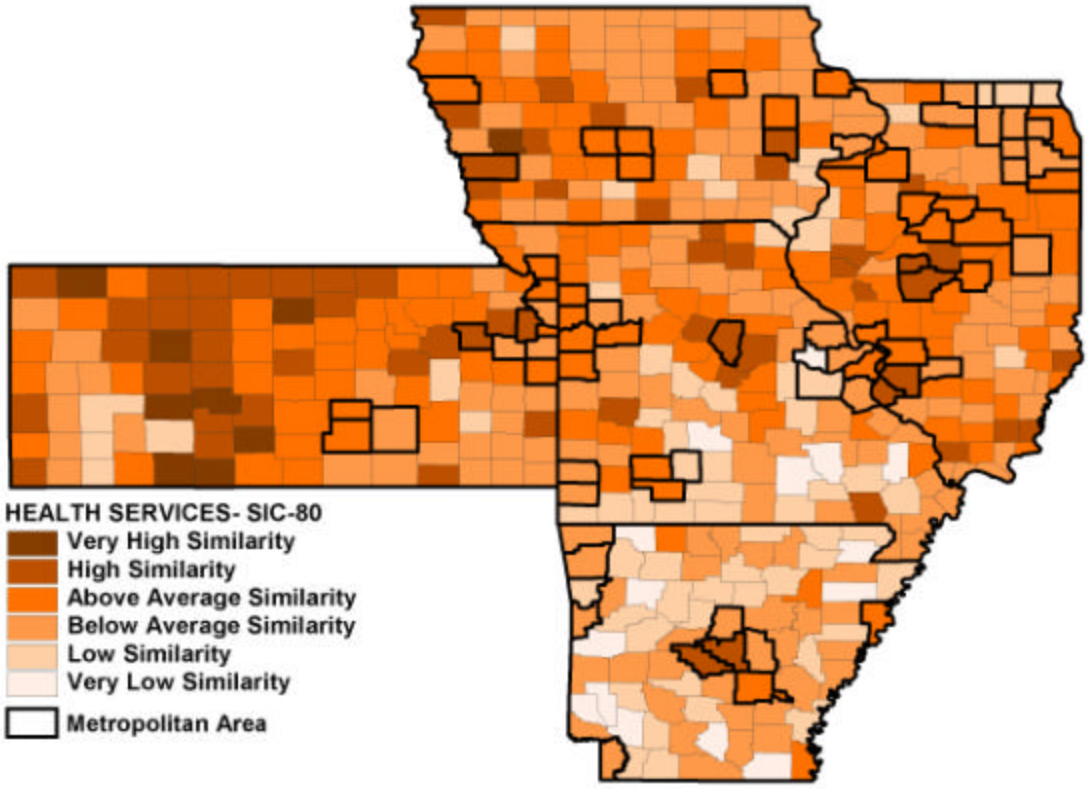
On average across the United States, the top five occupations demanded in this industry include:

Office & Administrative Support Occupations	24.3%
Computer & Mathematics Occupations	11.8%
Building & Grounds Maintenance Occupations	10.6%
Transportation & Material Moving Occupations	9.0%
Production Occupations	8.3%

In Missouri five counties had high or very high similarity between national occupational industry demand and county occupational supply, where all five counties had high similarity. The top similarity counties were:

OSAGE	CALLAWAY
ST. LOUIS CITY	MONITEAU
COLE	

Health Services



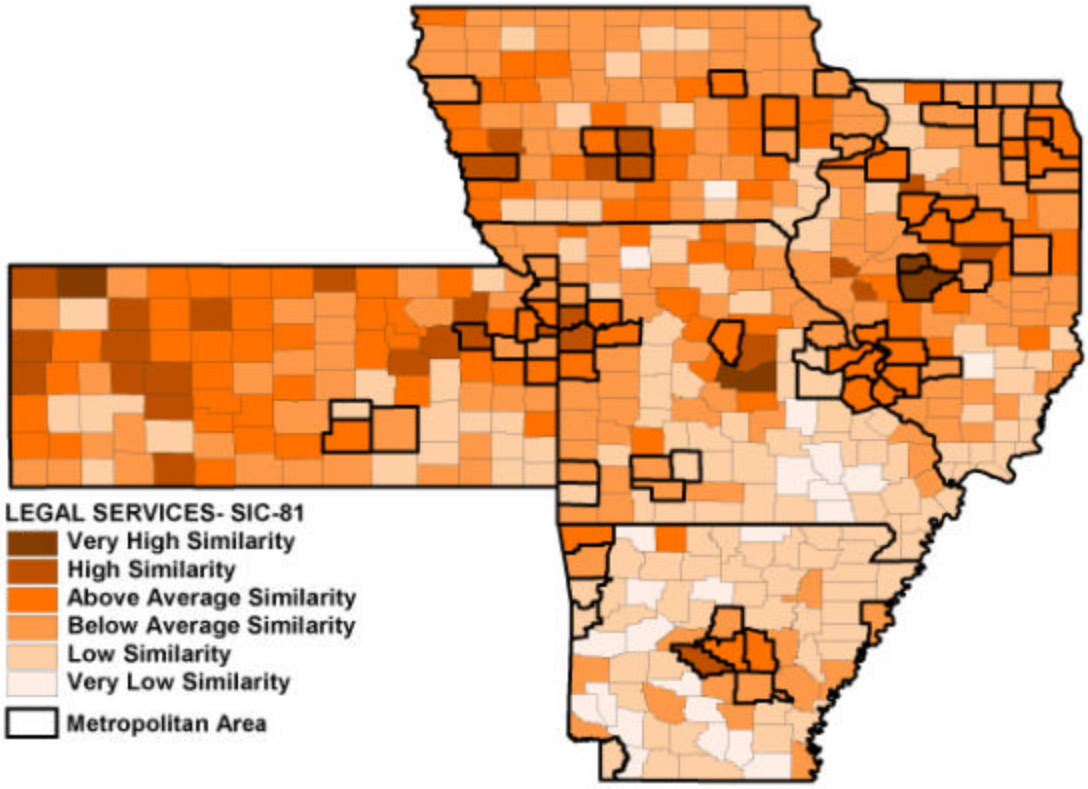
On average across the United States, the top five occupations demanded in this industry include:

Healthcare Practitioner & Technical Occupations	40.1%
Healthcare Support Occupations	20.4%
Office & Administrative Support Occupations	19.0%
Management Occupations	3.5%
Food Preparation & Serving Occupations	3.3%

In Missouri 10 counties had high or very high similarity between national occupational industry demand and county occupational supply, where all 10 counties had high similarity. The top similarity counties were:

BOONE	BUTLER
CALLAWAY	KNOX
SCHUYLER	HOWARD
ST. LOUIS CITY	COLE
ADAIR	ST. CLAIR

Legal Services



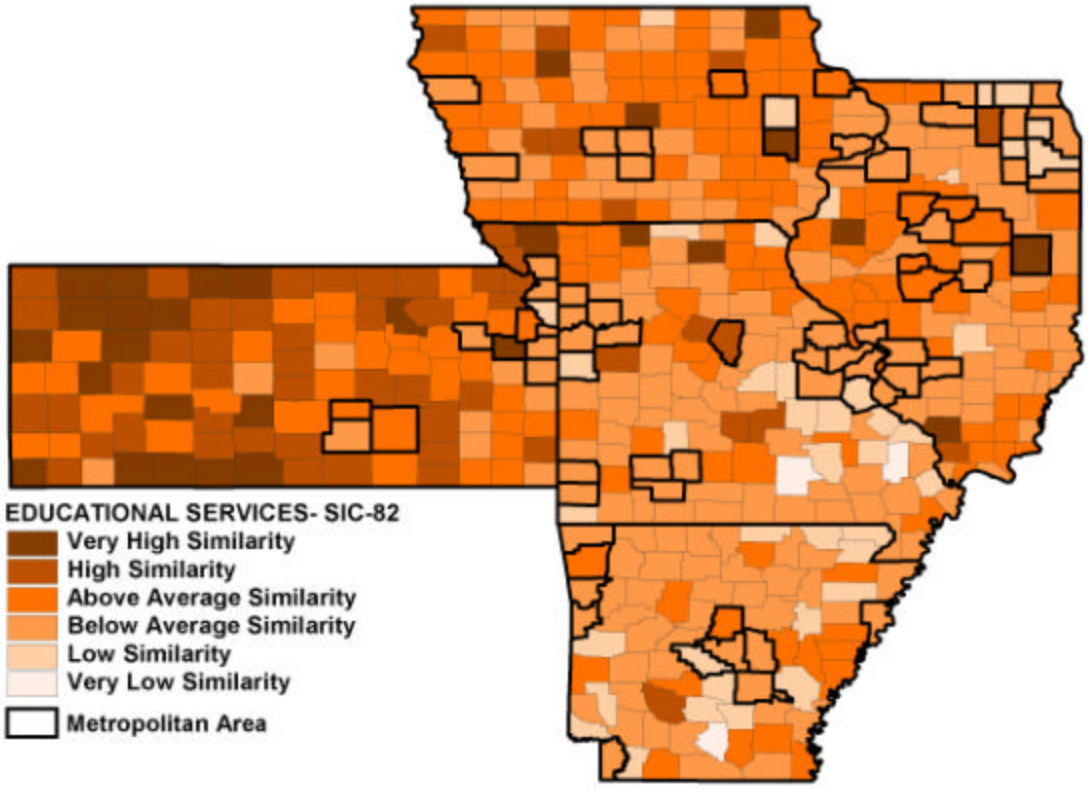
On average across the United States, the top five occupations demanded in this industry include:

Legal Occupations	47.7%
Office & Administrative Support Occupations	46.2%
Management Occupations	2.2%
Business & Financial Occupations	1.2%
Computer & Mathematics Occupations	1.2%

In Missouri five counties had high or very high similarity between national occupational industry demand and county occupational supply, where three counties had high similarity and two counties had very high similarity. The top similarity counties were:

OSAGE	CALLAWAY
COLE	JACKSON
CLAY	

Educational Services



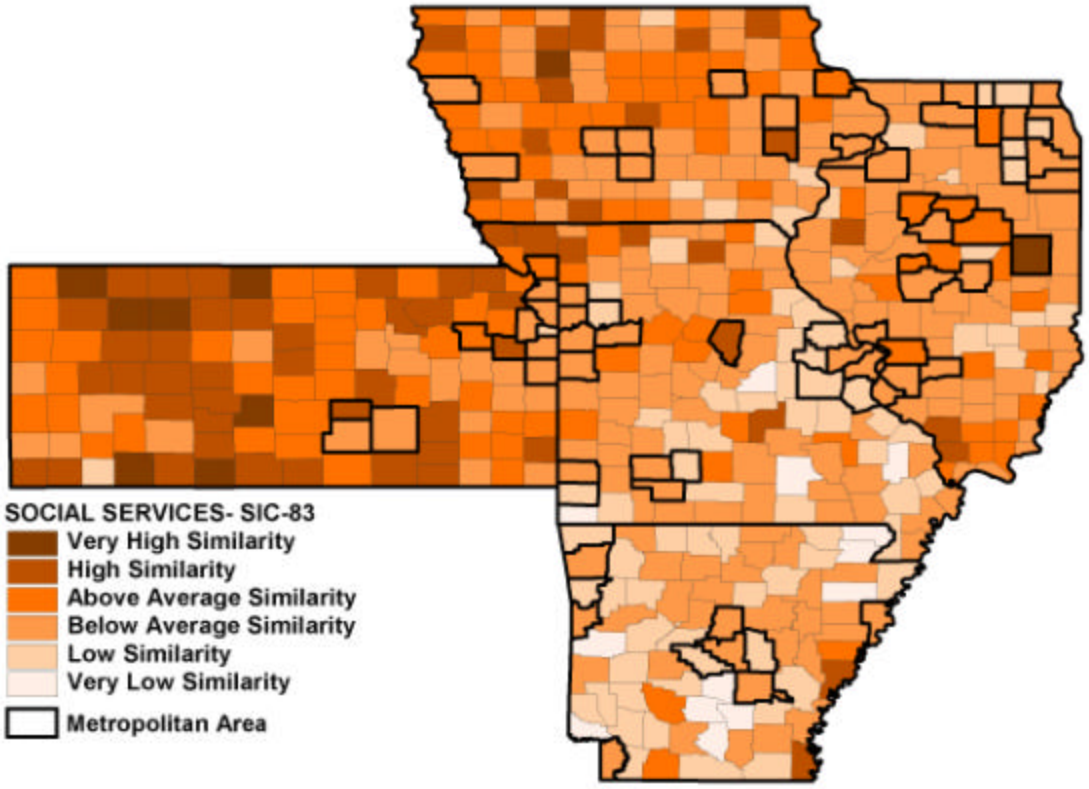
On average across the United States, the top five occupations demanded in this industry include:

Education, Training & Library Occupations	58.2%
Office & Administrative Support Occupations	10.8%
Building & Grounds Maintenance Occupations	4.8%
Management Occupations	4.7%
Food Preparation & Serving Occupations	4.3%

In Missouri 10 counties had high or very high similarity between national occupational industry demand and county occupational supply, where seven counties had high similarity and three counties had very high similarity. The top similarity counties were:

NODAWAY	JOHNSON
ADAIR	ATCHISON
MERCER	BOONE
HOLT	PULASKI
PHELPS	HOWARD

Social Services



On average across the United States, the top five occupations demanded in this industry include:

Personal Care & Service Occupations	19.1%
Education, Training & Library Occupations	16.7%
Community & Social Services Occupations	16.6%
Healthcare Support Occupations	10.4%
Office & Administrative Support Occupations	9.4%

In Missouri seven counties had high or very high similarity between national occupational industry demand and county occupational supply, where all seven counties had high similarity. The top similarity counties were:

ADAIR	BOONE
PHELPS	ATCHISON
GENTRY	MERCER
NODAWAY	